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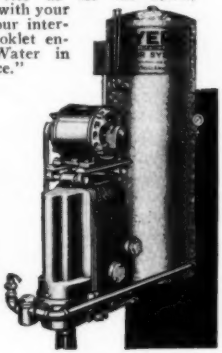

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Electricity on the Farm

April, 1932
Vol. 5 No. 4

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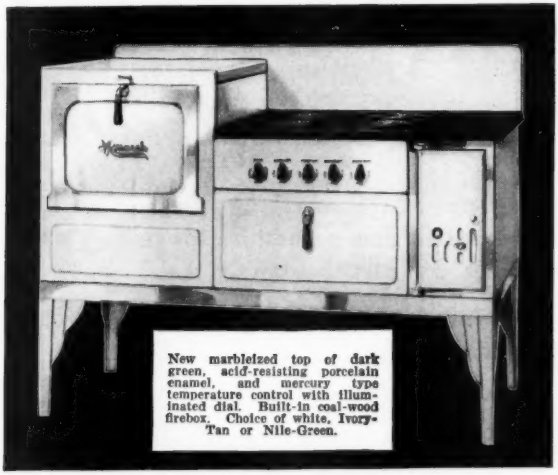
New—Beautiful—Practical

MONARCH
Conso-Fuelectric H17F . .


New marbleized top of dark green, acid-resisting porcelain enamel, and mercury type temperature control with illuminated dial. Built-in coal-wood firebox. Choice of white, Ivory-Tan or Nile-Green.

To the many users of Monarch Electric Ranges:

This new Monarch was not designed to make you envious.

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How Much ICE *Have YOU Harvested?*

If you are one of the many dairy farmers who have to find other means than natural ice for cooling your milk this summer, don't let that bother you.

Electrical refrigeration has ended the icing problem on the electrified dairy farm once and for all.

Here's how the Health Authorities feel about the situation, as reported in the February Bulletin of the New Haven, Conn. Dept. of Health.

> "In most instances the use of wells or springs for cooling milk to a proper temperature in summer is not considered satisfactory. The fact is, most farms do not have wells or springs which would provide the necessary or required temperature.
>
> "Years ago, when the supply failed in this part of the country, farmers obtained natural ice shipped in at considerable expense from the north. No doubt some ice will come in this manner this year. But the use of mechanical refrigeration has ended the icing problem once and for all for many of the dairy farms sending milk into the New Haven area.
>
> "Facing the present situation, more farmers are making plans now to equip their dairies with mechanical refrigeration plants.
>
> "A survey of dairy farms sending milk to the New Haven market shows that of the 346 dairy farms located in the district west of this city, 82 have already installed mechanical refrigeration.
>
> "Mechanical refrigeration is considered highly satisfactory by a great many dairy men, and the sanitary conditions surrounding plants using such means of cooling milk are naturally looked upon with favor by the Health Department."

Your Power Company or Refrigeration Dealer will gladly tell you how easily you can install and operate an electric milk cooler.

ELECTRICITY ON THE FARM

APRIL, 1932

The men whom I have seen succeed best in life have always been cheerful and hopeful men, who went about their business with a smile on their faces, and took the changes and chances of this mortal life like men, facing rough and smooth alike as it came.

—CHARLES KINGSLEY.

Because prices for farm products are low is no excuse for relaxing work. Discouraging though they may be, at least there is some consolation in knowing that most industries are today faced with the same problem.

In just such times as these are leaders made. The man who faces adversity with a smile, who possesses a determination to win, cannot be held back. He will fight his way out of difficulty.

The prices for the products of farms are not within the power of the farmer to change; the cost of producing these products is. The first logical step then toward profits is to reduce costs. This may at first seem difficult; even impossible. But when a thing must be done, a way of doing is usually found.

Of equal importance is the question of what to produce.

It may be hard to change methods, it may be hard to get out of a rut, but when a radical step is necessary it must be taken. If market prices indicate the advisability of sowing, for instance, seed peas instead of wheat, and local conditions are suitable, by all means make the change. If grain and livestock prices indicate that there is more profit in feeding the grain to the stock than in selling it, by all means feed it.

Conditions will improve, but in the meantime a little grit and faith are in order, for truly the men who succeed best in life are the cheerful and hopeful ones.

Junior takes a drink.

Electrically driven water pumps are

EASY TO INSTALL

By E. R. MEACHAM

IT takes all kinds of water systems to make a world. If you live on a farm, you hear very little of the intricate system of wells and tunnels and dams and reservoirs that assure a constant stream of water at the faucets of a great city. You do not have to pipe water 125 miles from some distant hills to your farm. The source of your water supply is a well or a spring right at your very door.

But when you get tired of going to the well every time you need a drop of water, and when you decide that you want the water to come to your kitchen and a bathroom in your house, and out to your horses and cattle in the barn, then you yourself must plan to get it there.

You can buy the working parts of a water system off the shelf. The pump that lifts the water from the well; the tank that provides the pressure to carry it along the pipes; the motor that drives the pump—all are ready to use. But putting in the water system and laying out the pipes to carry the water wherever it is needed takes separate planning for every farm.

A man need not go at his planning blindly in this year of 1932, however. The United States Department of Agriculture has three bulletins telling about farm water systems, and the Agricultural Engineering Departments of half a dozen colleges have published careful and complete recommendations for selecting and installing farm water supply outfits.

Then a man's neighbors can give him excellent hints on how to make his head save his heels, too, if he will go and see the way they have trapped the water on their farms into doing its own running.

Last week I visited three farms where new water systems have

been put in. Each of these farmers has met his problems in his own individual way. The first was Carl J. Brumm.

"Yes sir, we do have a water system," he said enthusiastically in answer to my question. "I'll be glad to show it to you."

He led the way into a building that was a combination of garage and farm shop.

Pump Freezes Up

"Our well has always been here," said he, "and before we put up this building, we had a windmill. But for some reason we always had a great deal of trouble with our pump freezing up, particularly when the wind was in a certain direction. There was a vent hole in our well pipe down below what we considered the frost line, but there must have been something about the way the well was stoned up that let the cold wind in from a certain direction, for it would freeze up every time the wind blew that way. So we finally decided to do away with all that trouble and to put in something we could depend on."

So they built them a well house. While they were about it, they made it big enough to hold their truck and their car and still have room at one end for doing their repair work. But to get their tank and pump and motor out of the way, and as a further protection from freezing, they decided to put them all down in an underground pit.

Mr. Brumm uncovered a hatchway in the floor near one corner, snapped on the light, and led the way down a short ladder into the pit.

This pit was about eight by ten feet and plenty deep enough to stand up in. It had good concrete walls and floor, and an electric light wired in conduit. Both the motor switch and the light switch were on the wall in the room above.

"This well is 160 feet deep," said Mr. Brumm, "so we put on a three-quarter horse motor. It pumps 240 gallons an hour. The slick thing about this pump is that it delivers water both on the up stroke and the down stroke. That makes a much steadier load for the motor."

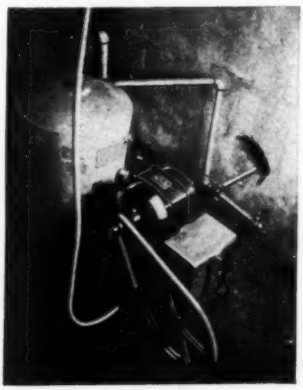
"How does it do that?" I asked.

"Well, you see right here at the base of the pump is what you call a differential cylinder. It takes the place of the packing gland around the rod of an ordinary force pump. It's open on the lower end and closed at the top and has in it a plunger with leathers just like the cylinder down in the well, except that it is only half as big. On every up stroke half of the water fills this cylinder and the other half is pumped out. And on the down stroke the water in this differential cylinder is forced into the tank, too. That gives us a much more uniform flow."

"How much does your tank hold?"

"If it were full of water, it would hold thirty gallons," he answered. "But we're never able to draw that much out of it because this is what they call a hydro-pneumatic system."

In a hydro-pneumatic water system the storage tank holds both water and air. When the pump is started, the air fills the whole tank. But as water is pumped in, the air is compressed in the upper part of the tank. By the time the



Looking down into Brumm Brothers' spacious well pit.

tank is two-thirds full of water, the air will exert a pressure of about forty pounds per square inch, and that is enough force to send the water through the pipes of an ordinary farm water system. In fact, forty-three pounds pressure will lift water 100 feet but it will not provide a satisfactory flow at that height.

Hydro-pneumatic systems have a pressure switch that stops the motor when the pressure in the tank is high enough, and starts it again before the pressure gets so low that the water comes very slowly from the faucets. On Mr. Brumm's system the switch is set to stop the motor at forty pounds pressure and to start it again at twenty pounds pressure.

Drawing about ten gallons of water from this thirty gallon tank will cause the pressure to drop from forty pounds to twenty pounds, starting the motor that fills it up again.

"How long is the pipe to the barn?" I asked Mr. Brumm.

"Just about eighty feet."

"How long did it take you to dig the trench for it?"

"That's the remarkable thing about this water system," he said, smiling broadly. "We didn't dig any trench. You'd never believe it, but we pushed the pipe through the ground from here to the barn."

Then he explained just how he and his brothers avoided all that digging in a tight clay soil. They decided where they would like to have the water pipe enter the barn through the basement wall. Next, they measured eight feet above that point and stretched a string tightly from there to the well pit. By fastening it just eight feet above the point where the pipe would leave the pit, they established the slope and direction that the pipe would have to take.

They cut their pipe in ten foot lengths so that they could get it down into the pit. On the front end of the first section they put an ordinary coupling and screwed a plug into it. They carefully aimed this first length so that it was exactly parallel with the string they had stretched and just eight feet below it. Then with a good automobile jack they began pushing the plugged end of the pipe through the ground.

Each time they extended the

Carrying the water into the kitchen. Note the faucet over the sink at the left.

jack to the limit, they put in blocking and began again. When they had pushed the first piece as far as they could, they brought another length of pipe into the pit, coupled it onto the first one, and went on pushing.

"It wasn't very fast," said Mr. Brumm, "but it was lots easier than digging."

"What if you had hit a rock?" I asked.

"We did hit a couple of small ones," he replied. But we knew just how far they were from the well pit here by the length of pipe we had shoved in, and we assumed they were right under the string. So we dug down with a post hole auger till we found the stone. Then we made the hole a little deeper and pried the rock off into it.

"The important thing is to get the pipe started in exactly the right direction and then not to hammer it or force it if it strikes something."

"Did you come out in the right place at the barn?" I asked.

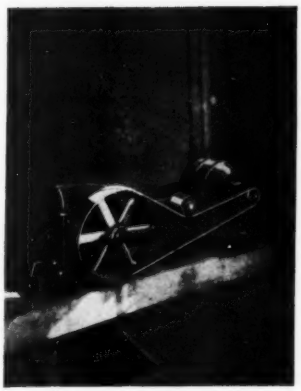
"It so happened that we did. Our pipe came into the very stall where we intended to put it, but so long as it stayed deep enough to be safe from frost, it wouldn't make a great deal of difference where we came into the barn. We could pipe the water where we wanted it anyway."

Water for Pigs

Once the system was in, the Brumm Brothers began to make it save them a lot of labor. Their use of it in raising pigs is a good example.

From the time the pigs were weaned till they went to market, they always had access to a supply of fresh water and to a self-feeder containing a mixture of ground oats and barley, oil meal, tankage and flour middlings. Seventy of them were marketed when they were just a little over six months old at an average weight of 221 pounds, and about Christmas forty-four more went over the scales at 241 pounds.

"We never raised our hogs so easy," said Mr. Brumm. "There was hardly any work to it at all.



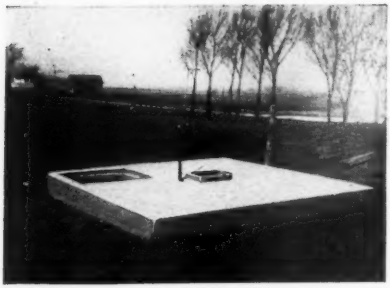
The frost proof set length keeps this outfit from freezing.

We just piped the water out from the barn to a good drinking fountain in the lot, and that settled that job for all summer. All we had to do was fill the self-feeders every day. We did feed them some ear corn in the fall, but we husked that right into the spreader box and let it scatter as we drove through the lot, so that wasn't much work either. Having that water always before them was certainly a lot easier than the old swill barrel method."

Not many miles away lives Arthur Casebeer. He, too, has put in his own hydro-pneumatic system, and has done all of the work himself. His deepwell pump, tank and motor are in a roomy concrete pit out in the yard. Mr. Casebeer piped the water to the drinking cups in his barn, to a milk cooling tank in his dairy room, and to the kitchen sink. He also put in a septic tank, because, he explained, as soon as milk prices go up again, he is going to have a bathroom.

I consider Mr. Casebeer's experience helpful to anyone figuring on a water system because he was able to give me a pretty good estimate of his installation costs.

Exclusive of the motor and the deep well pump itself, which can be priced from any catalog or by any salesman, the whole installa-



The top of the outdoor well pit at Arthur Casebeer's.

tion, Mr. Casebeer says, cost around two hundred dollars.

This includes his pressure tank, the drinking cups in the barn, the sink in the kitchen, the septic tank and the piping, even the piping to the bathroom he plans to equip.

Henry Pierstorff moved out from town to his father's farm three years ago.

"And about the first thing I did when I got here," said he, "was to put in a water system. I just don't see how the folks got along so many years without it."

Like the other two men, Mr. Pierstorff has a deep well. The pump for such a well must always be placed directly over the well, so that the cylinder can be let down to the water and the pump rod can work straight up and down. But Mr. Pierstorff wanted to use his pump motor for other purposes, particularly for running a big emery wheel. So he did not put his pump and motor down in a pit as the others had done, but set them right on the floor of his shop. And he did not buy an outfit in which the motor was attached to the pump mechanism.

Motor Helps in Other Ways

Instead he installed a good self oiling pump head and drives it with a separate motor through a two-inch leather belt. Though the depth of his well does not require it, he bought a one horse motor which is big enough for his other power jobs.

But Mr. Pierstorff's pump would certainly freeze if it brought the water to the top of the ground out there at the shop. To avoid that he put in what is called a "frost proof attachment" that extends about six feet down from the bottom of the pumping head. The packing gland for the pump rod and the discharge outlet for the water, as well as the pressure switch are all down at that depth in a very small, easily made pit. From them the discharge pipe runs under ground to the house cellar where the pressure tank is located. This pressure tank supplies water to both house and barn.

Such systems as I have described, or some modification of them will usually solve the water supply problem on farms where the water is down more than 22 feet. Several reliable manufactur-

(*Continued on page* 21)

Mr. Brumm seldom has to touch his water system.

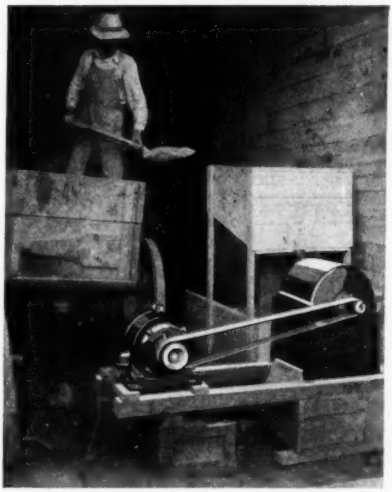
Indiana Farmers Profit by GRINDING WHEAT

By J. M. PEARCE

STATISTICS available at this time tend to confirm the common belief that we must continue to seek other channels for the disposal of our enormous supply of wheat. Figures published August 1, 1931, by the U. S. Dept. of Agriculture indicate that the winter wheat crop over the United States is 127% of the 1930 crop; and "Stocks of wheat of the 1930 crop in interior mills and elevators on July 1, 1931, are estimated to be 30,552,000 bushels." This same circular also indicates that the Indiana winter wheat crop is 153% of the 1930 production.

Miscellaneous publication No. 96 of the United States Department of Agriculture issued in September, 1930, has this to say about the feeding value of wheat: "Table 3 shows that when the price of corn is $1.00 per bushel, the value of wheat for feeding poultry and sheep is about $1.07, and for feeding hogs and beef cattle $1.12 per bushel." One farmer in the northern part of Indiana recently obtained, by actual records, as high as 85 cents per bushel for coarsely ground wheat fed through $6.00 pork. From these facts it would seem that feeding wheat to livestock will become a common practice.

Experimental data, substantiated by actual field tests, shows that wheat should be coarsely ground to give best results. A statement issued by C. M. Vestal, Purdue Experiment Station, summarizing the results of tests made on the feeding of soaked whole wheat versus dry whole wheat, says, "The results of these tests, however, indicate that soaking wheat increases its feeding value about 5%. More extensive feeding tests show that grinding wheat increased the feeding value approximately 15 to 20%. There should be no doubt as to the profitableness of grinding



Ira F. Nelson, Young America, Indiana, throwing grain into hopper which feeds it automatically into hammer mill.

wheat before it is fed. The wheat kernel has a coating which is impervious to digestive juices, and unless this coating is broken, a considerable percentage of the whole grains passes through the animal undigested."

Many farsighted Indiana farmers are already equipped to meet the grinding situation. I have recently called on five or six who have been using three and five horsepower electric driven hammer mills for the last two or three years.

Uses Little Hired Help

Among the first that I visited was Mr. Maurice Beisel, Rural Route 8, Frankfort, Indiana. Mr. Beisel farms extensively with a comparatively small amount of hired help, so time is very valuable to him. His hammer mill and five horsepower electric motor are conveniently arranged in the driveway of the barn. Over the mill and next to the grain bins is a hopper of about 15 bushels capacity. Under the mill is a feed box of the same capacity, and a homemade sacker stands by this box holding the sacks ready to be filled.

"I do most of my grinding at times when I am choring about the barns," said Mr. Beisel, "and I could not possibly have taken my feed away to the mill without keeping another hired man." He grinds for an average of 25 dual purpose Shorthorn cows, 25 brood sows, 300 feeder pigs, and 65 to 100 feeder cattle each year. Noon hour and chore time find his grinder purring faithfully away at its task while he goes about on other work.

During the period of 31 days from July 20 to August 20 he ground 700 bushels of wheat. The total consumption of current was 165 K.W.H., which includes lights in house and barn, water, pumping, separating, radio, cleaner, iron, and washer. The same amount of grinding at the custom mill (figured at 10c per cwt.) would have cost him $42.00. Thus, the saving on his grinding for that month paid his entire electric bill, and left a remarkably big profit. This is not taking into consideration the saving in time, labor and hauling, by being able to grind at home.

"Also," said Mr. Beisel, "it has always been my belief that when feed is ground and stored for any considerable length of time, it loses its palatability. *I like to have fresh feed at all times.*" How well we know that he is right!

Since the mill was installed in December, 1928, Mr. Beisel has ground approximately 10,000 bushels of grain. During the first year of operation he ground 5,000 bushels of oats.

"Figuring the same amount of grinding at custom prices, the mill actually paid for itself the first year and made a nice profit for me, too," said Mr. Beisel, "and in the spring the roads are often soft, making it very difficult for us to haul our grain to the mill. The value of being able to grind at home, automatically, is hard to estimate because of the time, labor and hauling saved." The total amount of repairs on Mr. Beisel's mill and motor have been approximately $25.00 or ¼ of a cent per bushel. I believe his next step along this line will be an arrangement of overhead feed bins with a blower on the mill to elevate the ground feed.

The next installation visited was that belonging to O. C. Hendrix, dairyman, of Burlington, Indiana, who was among the first in the state to install a motor driven hammer mill. The mill is located on the floor of a bank barn, with a 30 bushel hopper built directly over it. The 5 H.P. motor can be started from the feed room below, and the grinding process is entirely automatic. Mr. Hendrix grinds for an average of 24 cows, 10 calves, and eight brood sows and pigs. During a period of 11 months, 15 days in which a check meter reading was kept on his grinder he used 595 KWH for an average daily grinding of around 10 bushels of grain mixture (1 part corn, 1 part soybeans, 2 parts oats.). Thus, he averaged 1.8 KWH per day for his grinding.

Can you blame Mr. Hendrix for being enthusiastic about his grinder?

"I fill the big hopper about every third day, and while we are getting ready to milk in the evening I can grind enough for two more feeds," he says. "This gives me an even, continuous supply of fresh feed with no trouble at all." Mr. Hendrix has just bought a cylinder type corn sheller which will be operated by the same motor as his grinder.

Ward Haynes, dairyman, Rural Route No. 7, Kokomo, Indiana, can also vouch for the practicability of the small hammer mill. During the year 1930 his five horsepower electric outfit was metered, and records were kept for a period of time in cooperation with Prof. T. E. Hienton of Purdue University. During this period, 152 KWH were used to grind the following amounts of feed:

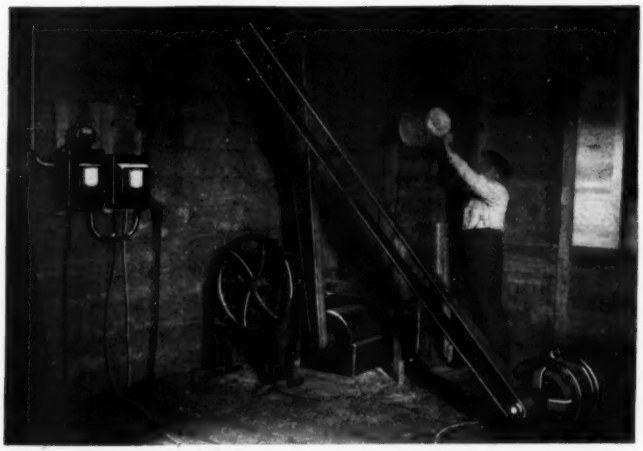
	Lbs.
Corn	24,938
Oats	13,829
Soybeans	6,914
Wheat	2,720
Total	48,401

Grinding all of this feed through a ¼" screen cost less than 1 cent per 100 lbs. for the electricity used. Mr. Haynes' installation is also very convenient, the whole grain being elevated overhead by a ¼ h.p. motor powered elevator.

Grinding at Low Cost

Many others in the same locality are doing the same things with the same equipment. Jacob Huffer, five miles southwest of Burlington, Indiana, is grinding 18 bushels of wheat per day on his hammer mill at an unbelievably low cost for electricity. Ralph Payne and Paul Johnson, of Burlington, Ira Nelson of Galveston, and Leroy Robeson of Logansport, all have the same story to tell: "Electricity is cheaper in cost of operation, labor and time saved, and convenience."

The records kept by these men substantiate previous field tests which showed that small electric driven grinding units were practical. That most grinding can be done on these units from 1/3 to 1 KWH per 100 lbs. feed, depending on the fineness of grinding



Electrically operated hammer mill in the barn of O. C. Hendrix, Bringhurst, Ind. The mill is automatic in operation and may be started from the basement of the barn by pulling an iron rod which connects to the switch on the first floor of the barn.

and condition of the grain, is an established fact.

Mr. Beisel said, "It looks as though we might as well prepare to take care of the big surplus wheat crop." He has already done that and I am wondering how many more farmers will follow in his footsteps. Electricity is no longer a luxury to the farmer, and as soon as others begin to take advantage of its usefulness and make it pay profits, as those named in this article have already done, more lines will rapidly be extended into rural territory. That same five horsepower motor which you buy for your grinder will operate your corn sheller, ensilage cutter, buzz saw, and many other pieces of equipment, and save you money on each operation.

Fit your own situation to any of the examples. Perhaps this year, when large amounts of wheat are to be ground you too can pay for that grinder, through its savings, and make it pay the light bill besides! The facts are very evident that grinding with electricity *pays profits* to those who take advantage of it!

Electric Germinator Starts Tomato Plants

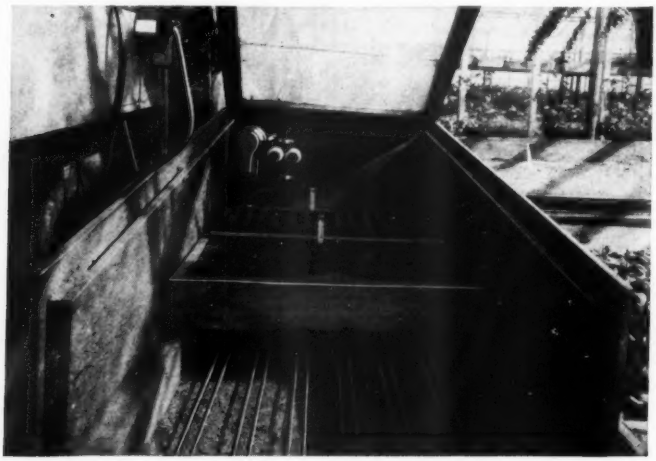
By Geo. W. Kable

A NEW application of the electric hotbed has been in use on the Herbert W. Collin farm near Detroit, Michigan, during the past year.

Mr. Collin has a box, in the workroom of his greenhouse, equipped with electric heating elements over which may be placed a number of flats containing the seeds of the plants to be grown. The heating elements maintain a uniform temperature and provide that small amount of additional heat which is desirable for good germination. The germinator, as shown in the illustration, is made of a double walled box with heating elements in the bottom. Rails are made of 2 x 4 timbers to support the flats. The box is covered with a glazed sash.

This arrangement insures uniform and good germination, and Mr. Collin has found its use very desirable for starting plants to be set in the greenhouse or cold frames.

(*Continued on page* 21)



A seed germinator for winter plants.

Electricity does the chores and permits Mr. Meyers to handle

INCREASED BUSINESS

By STANLEY BIDLACK

ABOUT two years and a half ago, Mr. O. J. Meyers succeeded in having electric service extended to his farm, near Milford Mills, in Chester County, Pennsylvania. When the service was connected, he discarded a small individual gas plant and started in to make electricity pay its way.

In 1929 he used an average of about 300 kilowatt hours a month; in 1930 this jumped to over 500, and in 1931, he used 750 in January and over 800 in February.

Equipment has been added as the needs and advantages demonstrated themselves. In the home, Mrs. Meyers now has a full autoatic electric range, and a refrigerator. She uses practically all of the smaller electric household appliances from a vacuum cleaner down to an electric corn popper. Recently Mr. Meyers purchased a fine electric radio.

Every room in the house is well equipped with convenience outlets, and is adequately lighted. The whole wiring installation was carefully planned, and will be satisfactory for a good many years after the cost is forgotten.

One of the greatest advantages of electric service lies in its convenience. When wiring is properly done, convenience is considered, and well located switches, frequently three way control, and plenty of baseboard outlets, pay for themselves many times over in the work they will save.

Incubator in use on the Meyers farm.

The barn lighting on the Meyers farm was equally well carried out. Fixtures were placed so that every corner of the barn and outbuildings could be lighted when necessary. A flood light was hung from a window up under the roof of the barn to light the barn yard and the walk from the house to the barn almost as brightly as in daylight.

The main entrance and meter equipment were placed in the shop, midway between the house and

The dairy laboratory of O. Jackson Meyers contains the following electrical equipment: Motor-operated Babcock tester, hot plate for water heating, 100-watt lamp with reflector and heating plate for Babcock test.

the barn. Planning ahead, Mr. Meyers installed a 200 ampere entrance switch, and connected to the service wires with three number 2 wires in conduit of appropriate size. Although larger than needed when the service was first installed, equipment has since been added which would require almost the full capacity of this entrance.

One of the feaures of the Meyers farm is a fine herd of purebred Guernseys, of which the owner is justly proud. The dairy barn is equipped with a modern type of stanchions and automatic drinking bowls. Water is pumped to a large storage tank on a hill top and flows back by gravity.

Before the electric service was installed, the milk was cooled over an aerator, and stored in a spring water vat.

During the hot summer weather it was necessary to haul ice, and even then the milk sometimes came back, and it was always hard to handle.

With electric service on the farm, Mr. Meyers investigated different systems of milk cooling and decided to install a six-can cooling tank with a motor driven compressor. The lower section of the acrator was connected to the tank, and a ¼ h.p. pump forces the ice cold water through the aerator coils. In this way it is possible to cool the milk almost instantly from milking heat to under 40° F. No difficulty in milk cooling has been experienced since this system was installed. The requirements for raw milk in this district are very exacting, but the price is so much better than the usual market pays that the additional care required in handling the milk is well repaid.

Sterilizing Utensils

Mr. Meyers built a separate room for washing and storing cans and milk utensils, put in a small heater, and a washing vat, and set about looking for a practical and efficient sterilizer to meet the dealer's requirements. After severe tests, he installed an electric sterilizing cabinet using hot air, rather than steam, as the sterilizing agent. It holds at one time three forty quart cans, the aerator coils and troughs, several milk pails and other utensils. The utensils are washed, rinsed and placed in the sterilizer, an insulated steel cabinet. The doors are closed and the operator pushes a starting button on the side. Then he forgets all about the cans until the next milking time. But the 2000 watt electric element in the cabinet starts to heat. When the temperature of the interior reaches 250° F. an automatic switch cuts off the current, and resets the starting button for the next time. Gradually the cabinet cools off, but the temperature remains above 220° F. for over 20 minutes, long enough to destroy all bacteria, and to penetrate into every crevice.

By morning the interior has completely cooled to room temperature, all moisture from the cans has condensed and drained off, and the perfectly dry utensils remain

in the cabinet free from bacteria, and any contamination from the outer air, until it is milking time again. To operate this sterilizer after each milking takes 5 k.w.h. a day.

In the room where the milk cooling tank is operated, a large closet has been built into a recess between the silo wall and a partition, to make a regular dairy laboratory. The lower shelf is in reality a work bench, and two heavy doors serve to protect the equipment when it is not in use by the dairy association's cow tester. Around the walls are racks to hold test bottles and milk samples, acid, etc. On the lower shelf, or bench, is a motor-driven Babcock test machine, and a hot plate for heating small quantities of water as needed. An electric space heater within the machine keeps a uniform temperature while the test is run. Overhead a 100 watt lamp with a cone shaped reflector lights the work bench adequately for accurate work at any hour of the day or night. This "laboratory" was built from odd scraps of lumber, and cost mainly a little ingenuity, but it is certain that with such a place to work, the tester's results will be 100 per cent accurate, and the Guernseys will all be fairly rated.

Refrigerator (left) and Washing Vats

After hatching, chicks are transferred to battery brooders until they are large enough to be placed in the regular brooder house.

While Mr. Meyers's main interest is in the dairy heard, his son, Oscar, has the poultry end under his sole charge. This young man, in addition to attending high school, has built up a good route of private customers for fancy broilers and eggs, sells baby chicks, and does custom hatching. Last year, he won a first prize at the State Farm Products Show for a dozen of fancy White Leghorn eggs. His business has increased so much that he now has a light delivery truck and hires a full time man to help him. Hatching is done with two mammoth incubators. These are heated by a combination of oil and electric heat. Oil burners supply the bulk of the heat, and electric elements, thermostatically controlled, maintain an even top temperature. The hatching eggs are taken from care-

(*Continued on page 32*)

HOOKED RUGS

By DANA VAUGHAN

Route 6, Madison, Wisconsin

NO matter what our homes contain, whether it be lovely furnishings or useful, necessary electrical helpers, still, as always, the individual hand-made things, adding the final notes of color, harmony and cheer are the ones that make just any kind of a house a home. Little homey touches express in their simple pleasing way the loving thought and interest of a woman in her home. The comfort and pride in the possession of such things is reason enough for the woman of the home to constantly want to add to her store of such types of handwork.

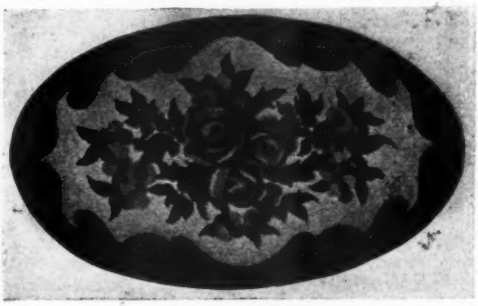
One of the most interesting and useful kinds of fancy work is hooked rugs. Hand-hooked rugs have been made and used for generations and the making of them in the home today furnishes fascinating use for our spare time with very satisfying results. They can be made from old cast-off woolens or silks, dyed to suit your particular pattern, or from lovely colored yarns, either fine or coarse. And, best of all, with care they will last a lifetime.

You can buy the manufactured equipment for making these rugs at home for very little. The wooden frames are inexpensive as are both the hand hooks for the fine yarn and the shuttles for the coarse yarn or strips of cloth. The rugs made of the fine yarn take longer to make, but are more easily cut or clipped and have the finished appearance of the oriental rugs, while the rugs made of the coarse yarn or cloth work up more quickly and offer a chance to use up old materials. Of course, the cloth must be cut carefully into strips after it is dyed the desired color so that the finished work will have an even surface.

Simple Patterns Best

Burlap is used for the base of the rug and is most easy to work on and hook through. If you have some knowledge of design, it is great fun to buy the burlap by the yard and draw or trace your own designs. To be most effective the rugs should be done in a simple pattern and fit the colorings and space in the room in which you wish to use it.

A spray of old-fashioned flowers or squares with a central flower on contrasting background, or a ship for the boy's room, or perhaps a "Welcome" pattern for the



One of the most interesting and useful kinds of fancy work is the hooked rug.

hall, all make charming designs for hooked rugs. You can also use interesting nursery symbols for the scatter rugs in the children's room. Burlap stamped with the designs and suggested color combinations in many of the historical old patterns may be purchased from almost any department store which has a fancy work or art department.

Carefully secure your burlap pattern on your frame, either using thumb tacks or carpet tacks, and you are ready to hook. You will find the finished rugs more than comfy to step on during the chilly winter mornings. By selecting your favorite colors you will find your rug more than just useful, but very colorful and beautifying to your room or home.

If you use the coarse yarn or cloth strips and the shuttle hook your work will progress at a faster rate of speed. However, what you use is a matter of taste and convenience, as either type of yarn or the cloth strips make lovely rugs.

If you want to clip your yarn rugs, try clipping every few square inches as you hook. You clip on the right side and be careful to clip each loop so your rug will have an even and neat surface.

After your pattern is finished you can fold and sew under the overlapping burlap and line the underside with some inexpensive material. The lining will not be noticeable if matched to your border color and will keep the dust out of the rug and make it less liable to ravel when it is being cleaned.

Electric Germinator

(*Continued from page* 16)

Mr. Collin also has an outdoor electrically heated hotbed. Last spring there were some especially cold nights when the manure hotbeds in the vicinity just didn't have quite enough heat to keep the plants from freezing. The result was a shortage of plants in that neighborhood. In telling us about it Mrs. Collin said they had a demand for many more plants than they produced and added this statement which tells a real story: "The night the others froze, it cost us just 15 cents to heat our electric bed." The monthly operating cost of the outdoor hotbed (6 ft. by 12 ft.) was $3.56.

Easy to Install

(*Continued from page* 12)

ers supply them in a range of sizes to fit almost any need.

Most experiment stations recommend pumping the water for the live stock into an overhead tank in the barn and letting it flow by gravity from there to drinking cups or water troughs. This provides a little reserve supply in case of accident to the pump or to the electric line, and it reduces the pressure on the drinking cup valves. However, many farmers seem perfectly satisfied to omit such a tank and to put their drinking cups right on the line from the pressure tank. Occasionally a man uses a regulating valve to reduce the pressure, but in my experience, the majority do not.

If the water in the well is never more than 22 feet below the place for the pump, a shallow well system can be used. In a shallow well system the pump cylinder is not down in the well, but is attached directly to the pumping mechanism. It draws the water by suction through a pipe reaching into the well.

For that reason the shallow well pump need not be placed directly over the well. It will draw water a considerable distance horizontally if the suction pipe is absolutely air tight, of reasonable size, and without too many abrupt turns. Where a shallow well is only a short distance from the house, the best location for the pump and pressure tank is in the cellar. That is an easy place to install them and to give them the very little attention they need, a convenient place to connect the motor to an electric circuit, and a place safe from freezing. Not the least advantage of the shallow well system is that it is usually much cheaper than a deep well outfit.

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH

Baking Dishes for Electric Oven

IF you were to drop into my house one of these days, and followed me out into the kitchen during the course of your call, I would show you a whole shelf full of new dishes,—not china for the table, but glassware for the oven.

I have thrown out five thin aluminum pans of battered mien and uncertain age, and I am doing my oven cooking in glass from now on.

I did not buy these new casseroles in any wild orgy of extravagance because glass looks so nice, nor even because it can be used as a serving dish and the food in it goes from refrigerator to oven and thence to the table, without dirtying any extra dishes along the way. I did not even buy it because it is so easy to keep clean.

I bought it because out in a certain Foods Laboratory I have never seen, out at the Agricultural Experiment Station in Pullman, Washington, a young woman called VeNona Schwartz has found that it is cheaper to use in an electric oven than shiny aluminum.

She was trying to discover the best way to bake vegetables in the oven of an electric range. She was working with vegetables because all food specialists consider vegetables of primary importance —and because up in her part of the country she discovered that women cook vegetables on an average of 12 to 15 times every week. One woman she found cooked and served them 31 times in a single week. And she was interested in cooking them on an electric range because electricity is, she says, rapidly becoming the cooking fuel of the Pacific northwest. Since electricity is paid to do the cooking by the kilowatt, it is important for everyone to get her money's worth from every single bit of current that passes over her wires.

One of the ways to do that, she realized, was to use the oven for vegetables as far as practicable—

not for a single pan of carrots, to be sure. That would cost more than cooking them on the surface unit, but whenever it was possible to cook several things in the oven at the same time.

The thing that needed study, then, was the type of utensils to use.

She started her investigation with two knowables: first, "that most vegetables require moist heat, and hence a covered utensil is necessary, and second, that "Radiation from the hot electric elements is the chief method of heating in the electric oven—so the best type of utensil to use, is the one that will readily absorb radiant heat, and the poorest is one that will reflect it."

Proving this by actual test took some time.

Miss Swartz selected seventeen pans of aluminum, stainless steel, glass, earthenware, enamel, and Dutch ovens of cast iron and cast aluminum.

With all the intricate gadgets for taking temperatures inside a closed dish in a tight oven, she patiently tried each pan with 1,000 grains of water — just over a quart, watching the time it took to bring the water to a certain temperature, and the efficiency of the pan.

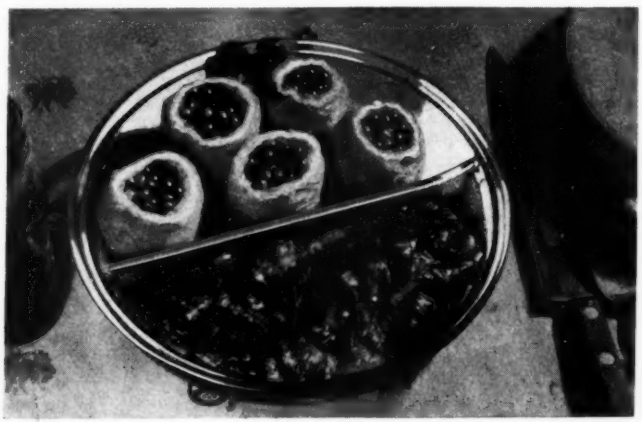
Efficiency means a great many different things. To a housewife it is a somewhat vague word implying good service, to be sure, but nothing you can put your finger on. But to a household engineer with a head for scientific investigation it is the ratio between the amount of heat that gets into the pan and its contents, and the amount of heat the current has produced.

Then to make sure that the theories she developed from the water heating tests were sound, she did it all over again with vegetables in the pans.

The shiny materials, aluminum and stainless steel, heat more slowly and less efficiently than do utensils of dull materials like iron, enamel, earthenware or transparent glass.

"The heating that occurs in an iron kettle in 26¾ minutes," says Miss Swartz, "is equal to the heating of an aluminum kettle or pot in 51 minutes. Likewise the efficiency of the iron is almost twice that of aluminum."

When she was cooking the vegetables she found that the same quantity in the same oven at the same temperature took longer to get done in aluminum than it did in glass, enamel or earthen dishes. Turnips and rutabagas that were tender in a 250° oven in 1¾ hours in glass, were not tender in less



than 2¼ hours cooking in shiny aluminum at the same oven temperature.

Speed and efficiency are highly important, of course, in the selection of oven dishes, but Miss Swartz points out several other things it is well to consider, too.

"Original cost and durability are important," she says in the bulletin, Baking Vegetables Electrically, that reports the results of her study. "The tests showed that there is no relation between cost and either speed or efficiency, for some of the more expensive utensils were less satisfactory in performance than the cheaper ones. Durability cannot be measured by laboratory experiments. With the best of care, however, any pan should be almost everlasting. If it is to be used carelessly, cast iron, heavy aluminum, and stainless steel will serve best, for glass and earthenware break, and enamel becomes chipped.

"A pan or casserole should be well balanced and easy to use. Its handles, if it has any, should be well placed, sturdy and dependable. A compact, squat little pan is better for oven use than one of the same capacity but flatter and of larger diameter, simply because it takes less room. If the pan or casserole has a flat cover so that another utensil can be set on top of it, it becomes more desirable.

"The dishwashing required should also be considered. Soap and water ordinarily will be effective for glass, earthenware, and enamel, but iron and aluminum usually require scouring. In addition, when china (or earthenware) or glassware casseroles are used for baking, the food can be served directly from the baking dish, saving the washing of a serving dish."

• • •

Peaches and Cream

PEACHES and cream are good all the year round. If you have them now, the peaches will have to be those you canned last fall, of course, or else come out of a tin, but they work into delicious desserts just the same. And if you freeze the cream, you will give them an added splendor.

You can have distinguished Peach Melbas for your own Sunday dinner any time. All you have to do is to heap the ice cream in the hollows of the large halves

TABLE 1. PERFORMANCE OF OVEN UTENSILS
(Average of Several Tests)

Utensil	Utensil number	Cost of utensil	Time to heat water to 200° F. Min. Sec.	Per cent efficiency
Aluminum	1	$1.00	54 30	13.1
	2	1.00	49 33	14.2
	3	1.00	49 18	13.6
	Average		51 07	13.6
Aluminum Dutch oven	1	8.00	40 15	16.7
Stainless Steel*				
Dull	1	12.00	39 22	15.4
Shiny	2	7.00	54 32	14.2
Glass	1	2.00	30 10	22.2
	2	2.00	31 18	22.7
	3	2.00	32 02	21.3
	4	2.00	31 10	21.3
	Average		31 10	21.9
China	1	2.36	30 57	22.0
	2	1.75	30 47	22.8
	Average		30 52	22.4
Enamel	1	1.25	30 10	18.8
	2	0.98	29 55	19.5
	3	0.69	29 07	19.4
	Average		29 44	19.2
Cast Iron	1	1.50	25 50	24.4
Dutch oven	2	2.30	27 45	25.0
	Average		26 48	24.7

*Stainless steels are not averaged together because of wide variation between them.

PROTECT
MILK PROFITS
throughout the year

NATURE alone cannot be depended upon to adequately protect your milk supply. Refrigeration in the milk house must be constant—Winter and Summer alike—to keep bacteria count down—keep your profits up.

You can be sure of dependable, economical refrigeration with the General Electric because it has the same simple sealed-in-steel mechanism that made an unparalleled performance record of attention-free service for the General Electric Refrigerator in well over a million homes.

Dirt, air, moisture and trouble are permanently sealed out of the General Electric Mechanism and efficiency is sealed in. It costs but a few cents a day to run and requires no attention—not even oiling!

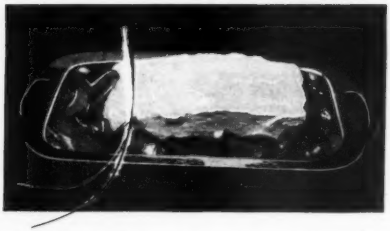
Guaranteed for 3 years against any service expense, the General Electric soon pays for itself and earns substantial profits. See your nearest dealer today or write to General Electric Company, Electric Refrigeration Department, Section CZ4, Hanna Building, 1400 Euclid Avenue, Cleveland, Ohio.

Join the G-E Circle. A special program for women every week day at noon (except Saturday). On Sunday at 5:30 P. M. a program for the whole family. (Eastern Standard Time). N. B. C. coast to coast network.

GENERAL ELECTRIC

MILK COOLERS

Domestic, Apartment House and Commercial Refrigerators, Electric Water Coolers



Turn the mousse out of the tray and pile the peaches around it.

of peaches. Or you can get something quite different by turning matters around and piling the peaches on top of the ice cream.

The dessert in the picture is a simple vanilla mousse frozen in one of the trays of a mechanical refrigerator. It was turned upside down on the platter and garnished with sliced peaches and just a little bit of juice.

The Bureau of Home Economics of the United States Department of Agriculture gives us this simple recipe for a plain vanilla mousse that is good with fruit. It may be frozen in your electric refrigerator or packed in ice and salt.

1 cup double cream
1 cup rich milk or thin cream
1 teaspoon gelatin
6 tablespoons sugar
2 egg whites
1/16 tsp. salt
½ tsp. vanilla

Soak the gelatin until soft in a little of the milk or thin cream. Heat the remainder and pour over the gelatin. Add the sugar and stir until dissolved, and put the mixture aside to chill. Whip the double cream. When the mixture containing the gelatin has thickened slightly, beat it to incorporate air. Add the vanilla and fold in the whipped cream and the well beaten egg whites.

• • •

The Five Foot Label

WE cannot see very far into the electric cord on our toasters nor on the lamps in our living rooms. It would not do most of us much good if we could, for we do not know just what makes a good flexible cord. When we are buying one, we have to depend on the word of some one who does.

Up to the time of the World War practically all the flexible cord made complied with the standards set up by the Underwriters' Laboratories—a testing ground for all manner of equipment. Their seal on a cord marks it as dependable and safe. In the years since then the growth in the use of electricity has been tremendous, and the growth in the number of manufacturers has kept pace. Many of the men who began to make electrical cords in this period had had no previous contact with the business of making electricity nor the machines that use it, and were not alert to the demand that every bit of cord built to carry electric current be so designed that it will not fail and create a danger to life and property where there need be no danger at all.

The flexible cord group of the National Electrical Manufacturers' Association has been working consistently to remedy this situation. They have set up a standard of marking that seems unescapable.

It became necessary because they found that of the two and one-half billion feet of flexible cord made in 1930—enough to stretch around the fattest part of the earth eighteen times and a lot left over—less than fifteen per cent was approved by the Underwriters' Laboratories or had met other standards set up in the interests of safety and good service.

"Let the buyer beware" may have been an adequate slogan for the old horse-trading days, but it has no rightful place in modern merchandising methods.

"Tell the buyer what he is getting" is the modern demand. "Then he can choose for himself."

The retailers knew the value of tested cord. Unscrupulous men were found winding untested, unidentified cords on the great spools or reels which had previously carried other cords and bore already the mark of the Underwriters' Laboratories.

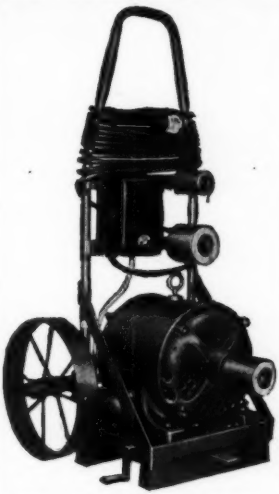
The five foot label is an attempt to protect the buying public from these impositions. The manufacturers' association is trying to protect the buyer from the unfit and the unsafe cords by telling us, you and me, that we are getting on our percolator, our toaster or our washing machine, a cord that the Underwriters' Laboratories assures us is safe and dependable.

They have developed a machine that will put a little bracelet label around the cord itself every five feet. This label says,

"Underwriters' Laboratories
Insp. Cord."

This little label adds nothing to the cost of the improved cord. That cost, by the way, for the lengths usually used for lamps or appliances, is only from three-fourths to two cents a length more than the untested cords. It varies with the size and type of the cord. That is a small premium to pay for the insurance of quality.

Let's look for the label.



5 Horse Power Century Portable Power Unit

Solid As A Permanent Installation

When placed in the operating position, this Century Portable Farm Unit rests firmly on a solid foundation and thus combines portability with all the advantages of a permanent installation . . . The crank-operated belt-adjusting screw permits proper alignment and adjustment of the belt tension. This is the only adjustment necessary... The unit is so well-balanced that you can move it easily from one job to another . . . Write for complete information.

Furnished for either single or 3 phase power . . . 3, 5 and 7½ horse power motors are the popular sizes.

CENTURY ELECTRIC CO.
1806 Pine St. St. Louis, Mo.

40 U. S. and Canadian Stock Points and More Than 75 Outside Thereof

Century MOTORS

ON THE AIR

Conducted by
JEROME J. HENRY

A Brief Story of the "Human Band"

"WHO are those fellows that sound like a whole band?" This question was duplicated hundreds of times in letters from listeners following the Mills Brothers' first appearance on the air over the Columbia Broadcasting System from the New York studios.

Unheralded, the four Mills Brothers arrived on the CBS studios for an audition. Officials there were so pleased with their performance that they were immediately given a contract, and were put on the air without advance publicity. In radio terms, they went on the air "cold," but, regardless of the fact, attracted greater response than any other beginners.

The Mills Brothers, colored, hail from Cincinnati. The oldest is in the early twenties—the youngest, seventeen. In their native city they entertained with harmony and imitations of a complete band. Using only a guitar, they duplicate with their voices, bass horns, trumpets, saxophones, drums and whatever instruments that may be required for presentation of a number. So realistic are their imitations that it is necessary for the announcer to point out during each broadcast that no instruments, save the guitar, are used.

As a "human orchestra," the Mills Brothers are radio's latest sensation. They may be heard every Monday and Thursday over a Columbia Broadcasting System network.

Their rise to radio stardom is one of the most remarkable in radio. They may be heard over a CBS network at 9:00 o'clock Eastern Standard Time every Monday and Thursday evening.

• • •

Answering Those Strange Requests

STRANGE requests, some presented in person, others arriving by wire and letter from every corner of the continent, are received daily by radio announcers and artists.

Jean Paul King, one day while he was announcing a commercial program, received an urgent wire. "Would Jean see if he could have someone play the "Wedding March" from Lohengrin?" Someone wanted to be married at home. Jean sent flowers to the bride.

Tom Corwine, the master imitator of some 300 animals, received another peculiar communication. Just before groundhog day he was asked to imitate this harbinger of spring. He fooled everyone by being able to do it. Then there's Norris Goff, who is "Abner" with the Lum'n' Abner team. He remarked that he was forever getting blackberry seeds under the plates of his false teeth and mentioned that he would have to get a new pair. A rural dentist sent a new set and requested that his name and address be broadcast. Abner returned the teeth.

A young man stopped Gene Arnold, announcer and vocal artist, in the corridor and asked Mr. Arnold to announce to his family in Champaign, Illinois, that he was

feeling fine. The young fellow had been in the city two days. Gene gave the boy enough money to send a telegram.

A book which was sent to Vincent Pelletier carried with it a message asking that he spend an hour each day reading it over the air so listeners could find romance at home instead of eloping. After reading it, an elopment became Pelletier's ambition.

• • •

Started Career in Attic

A FORBIDDEN trip to the attic probably gave radio its "Poet of the Organ." Curiosity and a desire to play a musical instrument led Jesse Crawford to the attic of the rambling orphanage building where he had been placed by his mother.

The orphanage was located at Woodland, California. No other member of the household had ever dared venture into the musty room. But young Crawford was Irish and able to take care of himself—besides, he was inquisitive. He opened the attic door, made his way among the varied assortment of musical instruments that had been laid away there following an un-

Arkansans who left their native home to become radio artists—Lum and Abner—clever character portrayers. They may be heard daily, except Saturday and Sunday, at 2:00 P.M., Eastern time, over an NBC-WJZ network.

"Nothing can beat it—
Keeps my milk below 50° all the time"

. . . *says* NATHAN RANNY, Vermont Dairyman, of his ESCO Electric Milk Cooler

With an ESCO in your milk house, as Mr. Ranny writes, there will be no uncertainty about your milk. Just put it in your ESCO and forget about it, knowing that it will be cooled quickly to below 50° . . . and kept cold until shipped.

This means a sure market and greater profits because quality milk is in constant demand.

ESCO Electric Dairy Water Heaters for hot water—and ESCO Electric Dairy Sterilizers for efficient, economical sterilization of utensils.

Mail coupon today for full information.

ESCO CABINET CO.
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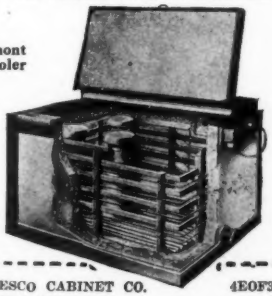
West Chester, Penna.

ESCO
The Patented Electric Milk Cooler



ESCO CABINET CO. 4EOF32
West Chester, Pa.

I am making.....cans of milk a day. Please send information on ESCO Milk Coolers, Water Heaters and Sterilizers.

Name .....

Address .....

P.O..... State.....

successful attempt at organizing an orphanage orchestra.

Jesse hauled out the largest horn and blew terrifying sounds that were, nevertheless, delightful to him.

The footsteps of one of the brothers became audible to Jesse and the disciplinarian appeared. Of course, the boy was frightened.

"Do you like to play it?" the brother finally asked.

"Why—yes, I would like to learn," Jesse said as he gathered his breath.

"Then I'll be glad to teach you," said the brother.

From that incident Jesse began his long climb to fame as a musician. He later became a master of the piano and of the organ, appeared in many theatres, then contributed his services to the radio. Now his music is sent to the country over many stations in frequent programs.

• • •

Secret Service Series by "K-7" Begins

EXPERIENCES of American and foreign secret service operatives during the world war are being dramatized in a new series of programs every Sunday at 10:45 p. m., Eastern time. The productions are based on material supplied by a former member of the U. S. Secret Service, who for obvious reasons prefers to be known only by his designation, "K-7." Some of the stations carrying the feature are WENR, Chicago; WGAR, Cleveland; WJZ, New York; WCKY, Covington; WJR, Detroit, and WREN, Lawrence.

• • •

England's Pride Goes on U. S. Network

AN organization regarded by many critics as the finest in England, The London String quartet, will present an extended series of network broadcasts in America. The musicians will be on the air on April 17, April 24, and May 1 at 2:00 p. m., Eastern time. The quartet, organized 16 years ago, has appeared in practically every country in the world. Tune them in on WGAR, Cleveland; WJZ, New York; KWK, St. Louis; KOIL, Council Bluffs; WLW, Cin-

The United States Army Band at the Capitol in Washington, D. C. Programs by the band are frequently broadcast over both NBC and CBS networks.

cinnati, or a number of other network stations.

• • •

Sing Sing Inmates to Eat "A la Rector"

INMATES at Sing Sing are loosening their belts in preparation for menus planned by Rector. Warden Lewis E. Lawes, after listening to George Rector broadcast recipes, wrote:

"I have a household of more than 2,500, and am allowed the sum of 23.4 cents a day each to feed them. Can you suggest a menu that might improve that which we have now?"

Rector sent the following sample menu which he said could be prepared at the cost of 23 cents.

Breakfast
Hot cereal with banana and milk
Bread Butter
Coffee

Dinner
Lamb Richelieu
Stringless Beans
Bread Butter
Indian Pudding
Tea

Supper
Split Pea Soup
French Bread
Stewed Prunes
Milk

• • •

Studio Chatter

COUNTRY girls who sought romance in the city are the most ardent exponents of gardening, says Richardson Wright, editor of House and Garden, who is giving a series of radio talks on gardening. He says their husbands have found they are not so susceptible to homesickness when occupied with a little garden.

Peter Dixon, author of "Raising Junior," writes the scripts for his program in what was once a basement coal bin. Lee Sims, wizard of the piano, spends his spare time building radio sets and repairing his automobile.

Gene Carroll of Gene and Glenn will not carry an umbrella. A sprinkle sends him scampering to a taxi, while Glenn Rowell, his partner, lovers the rain and thinks carrying an umbrella is smart.

Walter Winchell, radio master

Insect Control by Electricity

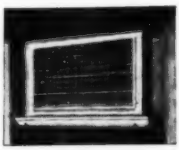
THE solution of your insect problem is offered by the Insekiller. This device utilizes the natural habits of insects to bring about their destruction by electrocution. Where present day methods are troublesome and costly with mediocre results at best, now, the Insekiller will give you the efficient protection that valuable crops require.

The Insekiller offers a practical and efficient method for insect extermination. It does the work thoroughly and it is not subject to constant repairs and adjustments for it is ruggedly constructed for permanent service.

The INSEKILLER Screen

The fly is always present in dairy barns and this insect is probably the most important cause of financial losses in the dairy industry. The Insekiller Screen, a modern, sanitary and efficient destroyer of flies, offers absolute protection against this pest at an extremely low cost.

The Insekiller Screen electrocutes the flies as they go outdoors attracted by daylight (Phototropism), it will also kill those that enter the guarded area attracted by odors (chemitropism).



A PROFITABLE INVESTMENT

The Insekiller has proven its worth in all types of agricultural fields, orchards and in the dairy industry. Our Entomological Department offers you a valuable service in assisting you in the solution of your insect problems.

Most destructive worms are bred by moths—Get the moth before the worm is bred.

FOLMER-CHAPIN CORP.
254 Mill Street — Rochester, N. Y.

Since the days of the crystal set, fans have known Lee Sims and his piano moods. Today Sims and his beautiful partner, Ilomay Bailey, entertain with radio programs five days each week.

of ceremonies, started his career as a theater usher in New York. There were two other ushers in the house, Eddie Cantor and George Jessel.

Julia Sanderson and Frank Crumit are just a happily married couple who tried radio broadcasting for a lark.

Thomas P. Gore, the blind senator from Oklahoma, is rated as an ideal radio speaker.

Robert L. Ripley left for the Fiji Islands in February. There he plans to interview Queen Vaekeha and her 500 husbands.

Microphones are being installed in George Washington's home in Mount Vernon for the first time in history.

Listeners recently took an announcer at his word when he told them to write their comments on the back of a laundry bill. In fact, he received notes on laundry, milk, telephone, and rent bills, and IOU'S.

Increased Business

(*Continued from page* 17)

fully selected, blood tested stock, and the best modern incubation practices are followed.

When the chicks are hatched, they are transferred to an electric battery brooder, and then either sold or kept until strong and large enough to go into the regular brooder house. In the brooder house, dim lights are burned all night over the feed troughs. This serves to prevent crowding, and the weaker fellows, who are pushed about during the day, will come out at night to eat when they are not molested.

The cockerels are sold off as broilers, while the pullets are culled, and go into the laying pens when large enough.

In the laying house, lights controlled by a time clock, are used during the winter months to give a longer working day. Results with lights and without have shown that the lights pay.

In the farm shop is an electric driven saw and other equipment. Mr. Meyers has recently purchased

Meyers' electric sterilizing cabinet.

a three horse power motor to be used for light power jobs about the farm such as corn shelling, running a saw, and fodder cutting. He plans in the future to install heavier power for feed grinding, mixing, silo filling and the like.

At every step, however, electric power has had to demonstrate that its use would be profitable and economic. The Meyers, both father and son, are great for figuring things out and they are using a lot of electric current at a profit.

The Portable Motor Saves Time and Expense

By J. C. Scott

A FIVE horsepower portable farm motor will soon pay for itself in the saving effected by its use on a thirty-five cow dairy, according to Mr. O. K. Husby, dairy farmer, living near Arlington, Washington.

Mr. Husby recently purchased an electric motor to use for filling his two silos. In former years, he had hired a tractor and large crew for this purpose. However, it was often impossible to get the tractor and the crew together at just the right time, so he decided to purchase his own machinery, use a smaller crew, and be able to put up silage when it should be done.

Satisfactory Arrangement

The five horsepower electric motor operated a ten inch silage cutter and the crew consisted of three men. It required six days to fill the first silo to eighty-five ton capacity with oat silage.

This arrangement was so satisfactory from the standpoint of reducing expenses that Mr. Husby decided to try the motor for hoisting his hay crop into the barn.

The hoist, known as "the one-man hoist," developed at the Oregon Experiment Station, Corvallis, Oregon, by the Committee on the Relation of Electricity to Agriculture was put on the job.

Instead of paying out $3.00 a

ROPER

manufacturer of high grade pumps since 1857, offers

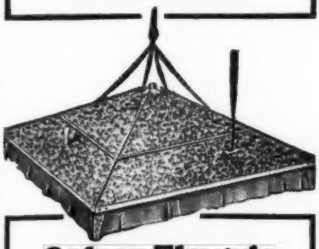
WATER SYSTEMS

Shallow and deep well to fit every purse

Complete as low as $50.95 Write for literature

GEO. D. ROPER CORP.
430 Blackhawk Ave., Rockford, Ill.

No ashes, fumes or trouble



Oakes Electric Brooder

The Oakes Electric Brooder is fully automatic. Maintains even heat always. No crowding or smothering. No lamp or stove to take up space. No fire hazard. No danger of gassing chicks. Saves work, worry, time. Five sizes: 75 to 625 chicks. Write for 16-page Electric Booklet.

The Oakes Mfg. Co.
Dept. 77, Tipton, Ind.

day for a team to hoist the eighty tons of hay into the barn, Mr. Husby paid only $3.33 for all the electricity used on the farm during the month of July, when the hay was put up, which included lights and the pumping of water for his home and the watering of thirty-two head of milch cows.

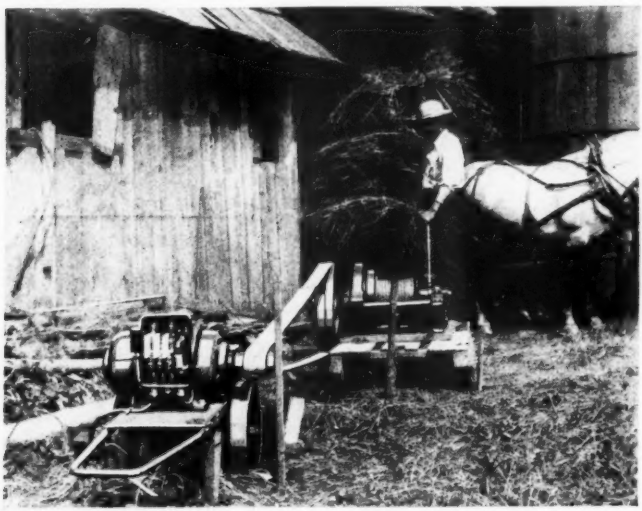
"By golly, that beats anything I ever saw," exclaimed Mr. Husby. "And let me tell you about my neighbor who used one of these electric motors and hay hoists. He had a lot of hay cut and standing in the field in shocks. He wanted to get it in quickly because it looked like rain. He would have liked to hire three extra teams and wagons, but could not hoist fast enough with a team, so he got an electric motor and hoist, which kept the whole crew going in fine shape.

"At first he was afraid it would be terribly expensive to run the motor, so he had the Power Company man read the meter for one day's work. And how much do you think it cost to hoist hay all day with his electric motor? Just sixty cents. Cheap enough, I claim."

After the hay was put up on Mr. Husby's farm, the man who milks and cares for the cows suggested that the electric motor be used for cutting green feed and roughage.

"That was another good idea," said Mr. Husby. "It requires one man only six or seven miinutes a day to cut the green corn for thirty-two head of milch cows."

Although a one horsepower motor will operate the ordinary green feed cutter with ease, yet the five horsepower portable motor can economically be used for such farm jobs as require less power, because a larger motor consumes only a very little more electricity than a one horsepower motor where only one horsepower is needed.



O. K. Husby operating the one man hay hoist developed by the Oregon C. R. E. A. The hoist is driven by a portable 5 H.P. farm motor.

Double Duty

By Ethel Morrison-Marsden

FOR years we have made our hot summers livable by the use of an electric fan. Many a night we could never have slept in a small close bedroom were it not for the cool breeze which the fan threw about in the room we were then using underneath a roof where the sun poured its scorching rays all day long. I sometimes think the babies could never have withstood the heat, either. But my fan seemed to me like a godsend, for I would lower the shades in the afternoon, turn on the fan, and when the room had gotten to a more comfortable temperature with fresh air being circulated around, I would bathe the children, coax them to sleep and lie down myself. It was not only rest for me, but for the little kiddies as well. I always felt that the fan had done its duty if it did take a long, long rest in the winter months.

The Fan a Winter Servant

But recently we have found that we can make the fan a winter servant as well as a summer one, and through its use not only keep more comfortable in winter, but also save a very tidy part of our fuel. We have what is known as a parlor furnace, and although this throws a very good heat and really circulates the heat very well, adjoining rooms where the heat has to go through a single door do not get either the heat or the air circulation really necessary. We have the parlor furnace in our living room. Opening from the living room is a small room in which I spend many hours each day writing, and although this gets fairly warm by the middle of the day, it is very cold in the morning when I wish to work there. Last year I used a small electric room heater here, and although this worked out nicely, it was, of course, more expensive to heat than it would have been otherwise. This year my husband conceived the idea of getting

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WATER SYSTEMS
New Rotary Principle employed in power head. No walking beam, fulcrum or crosshead to obtain straight line motion. Compact. Less moving parts. All enclosed and running in bath of oil. Quiet. Lasting. Reliable. Economical. Capacities 200 to 10,700 gallons per hour. No other system like this.
Write for Booklet No. 11
RED JACKET MFG. CO.
DAVENPORT, IOWA

PAINT *with* ELECTRICITY
Easier - Quicker - Cheaper - Better!

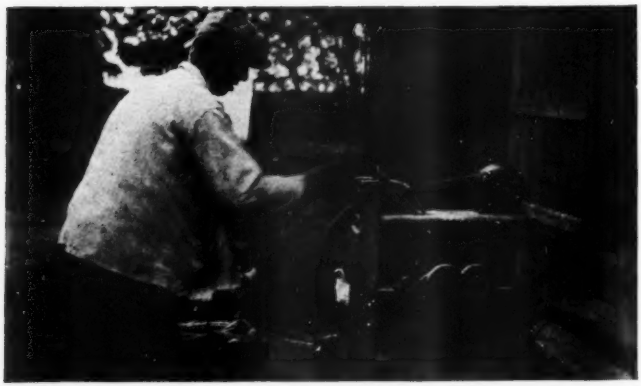
Earn money doing neighbor's painting jobs—save money on your own. Do them without brush or smears, quickly and easily. Hard-to-get at places can be painted with Paint-O-Mister in a fraction of the time required by the old brush method. Paint-O-Mister also sprays insecticides effectively. **Fully guaranteed. Agents Territories available.**
Write for Literature
ATCO PRODUCTS CORP.
7 West Scott Ave., Rahway, N. J.
REG. U. S. PAT. OFF.
THE Paint-O-Mister
MADE IN U.S.A.

out the fan, which we had put away for the season, placing it on a shelf above and behind the stove, and directing it toward the doorway of my den. I was astonished at how warm it became in a very few moments without any other heat. Of course, the living room fire was booming.

Early in the fall, before we put up our dining room stove, he tried shooting the heat into the dining room from the living room, through a single door in the same manner. We certainly were astonished at the rapid rise in temperature. In fifteen minutes one cold morning we raised the temperature in the dining room twenty degrees. Formerly we had had to use a small sheet iron heater in this room for early fall and late spring, for it is a large room with a big bay window built on.

I thought the idea quite original with us until we visited some friends in a neighboring town and found them using the same plan a little differently. They have a one-eyed furnace which heats the down stairs very well, but the upstairs is as cold as a barn, although they have a good sized register cut directly above the one in the lower floor. They use a small fan hanging down on wires from the upstairs register, and facing up toward it. The fan is, of course, directly over the large downstairs register and hangs down about three feet from the ceiling. When in operation it blows the hot air, which rises from the register, on up through the second register and into the upstairs of their home. They are able in this manner to keep these upper bedrooms very comfortable for sleeping purposes and do not have to use an extra heater as they formerly did.

As I said before, we found it a great saving of fuel. It costs little, very little, in fact, to operate an electric fan. One can run it for hours every day if necessary and not notice any very great difference in the bill for electric energy. By throwing the excess heat from one room into the others, which are cold, you can avoid having to fire up one to such a great heat in order to heat these adjoining rooms, and the use of other heat in these rooms themselves. Nothing could be simpler or more economical and it means no extra additional outlay for equipment; it is only making the fan do double duty instead of laying off for the winter months. We are delighted with our discovery.



A small motor can do the task of shelling corn, but it's a mighty tiresome job to do by hand.

Questions and Answers

Conducted by H. J. GALLAGHER
Agricultural Engineering Dept.
Michigan State College

Question: *How much difference in power between a 2 H.P., 25 cycle, 220 volt, single phase motor and a 2 H.P., 25 cycle, 220 volt, three phase motor? Which is cheaper to run?*

What is meant by repulsion induction motor? Split phase? What kind of a circuit for a split phase motor?

Is a 7½ H.P., 220 volt, three phase, 25 cycle motor large enough to run a No. 12 McCormick-Deering ensilage cutter to fill a 30' silo?

What would be the cost of running this motor at 2½ cents per K.W.H.?

What size pulleys should be used on the motor and cutter?

Mark Davis, Avon, New York.

Answer: A 2 H.P., single phase and 2 H.P., three phase motor each produce 2 H.P., and on the same rate will cost the same to operate; the difference between the two motors is in the construction which is necessary for the two different kinds of service.

A repulsion induction motor is a single phase motor; single phase motors require an auxiliary starting device consisting of brushes, commutator and short circuiter, current flowing through the armature windings cause a repelling action and makes the armature revolve, this is known as a repulsion start; when the motor speeds up the rotor functions as in an induction motor. Three phase motors are induction motors as they need no auxiliary starting device.

A split phase motor is a single phase motor w.th a starting winding on the stationary field, it operates on 110 volt A. C. current. It has a low starting torque and is not recommended for many farm jobs.

A 7½ H.P. motor is of ample capacity to run an ensilage cutter if the knives are sharp, closely adjusted to the shear plate and the tips of the elevating wings fit within ⅛ in. of the drum. A 6-in. or 7-in. diameter pipe should be used. A 6-in. pulley on the motor and a 20-in. pulley on the cutter would give the correct speed.

The cost of running a 7½ H.P. motor at 2½ cents per K.W.H. would be about 25 cents per hour.

Question: *Please tell me how I can wrap a coil so as to get 12 volt power from a six-volt battery, or is this possible? It does not necessarily have to be 12 volt; all I want is an increase in voltage or power as I want to run a generating motor from the battery and I need a little additional power and do not wish to use two batter-*

Amazing New Sheep Shear

Complete electric sheep-shearing machine, weighing no more than an ordinary shearing hand-piece. The only machine of its kind, designed from start to finish for shearing sheep and goats. Changing bottom plate makes it finest animal clipper

ELECTRIC
STEWART Shearmaster

Shears Sheep, Goats; Clips Cows, Horses, Mules, Dogs

Runs on any current or 6-volt battery, as specified. Perfect balance. Easy grip any position. Marvelous motor. Fully guaranteed by world's oldest established and largest makers of clipping and shearing machinery. At your dealer's or sent direct. $2 with order, balance C. O. D. Get catalog describing this and other models of world's greatest clipping and shearing machine line. Chicago Flexible Shaft Company, 5524 Roosevelt Rd., Chicago.

Satisfaction or Your Money Back

$25

with 20 feet of 3 lead rubber covered cord. Special voltages slightly higher. Specify your available current.

ies. Could a person build a generator so that it would run in either direction? What I want is a reversible motor using one switch to run the motor in one direction the other switch to the opposite direction. I have a Ford generator in mind.

ELECTIRCITY ON THE FARM *led me to ask you these questions.*

Bill Blair,
Geddes, So. Dakota.

Answer: The only way to increase the voltage from a battery is to add other batteries. Dry cell batteries have a common voltage value of 1.4 to 1.5 volts per cell. A six volt lead storage battery consists of three lead storage cells connected in series, the voltage value of each lead storage cell being 2 volts. The size of the cell does not affect the voltage.

Direct current cannot be "stepped up" or "down" as in the case of alternating current.

To change the direction of operation of a D. C. motor requires two operations; first, that the direction of flow of current in the field windings be changed. This can be done by a double throw switch on a four-point switch; second, that the brushes be in proper position on the armature, this is a mechanical adjustment. The direction of rotation can be changed by the switch method, but unless the brushes are in proper position for each direction, there will be excessive sparking and inefficient operation.

The Ford generator makes a very unsatisfactory D. C. motor.

Question: *I would very much like your opinion of the practicability of the idea herewith for an electric motor. This is copied from Popular Mechanics.*

"An old 6-volt auto generator of the three-brush type can be converted into a high-speed motor that will develop from 1/8 to 1/6 HP. at a speed of 3,000 to 5,000 r.p.m. Remove the armature and disconnect the three field leads from the brushes. The one that goes to one of the terminals of the generator output is taken off that terminal. Then connect the two remaining wires together and insulate the joint. Connect the field coils of the generator to the 110-volt a.c. line and make sure the field is continuous, which can be determined by holding a screw-driver near the magnetic poles. If the winding is continuous, the screwdriver will be attracted toward them. Next replace the armature and assemble the generator. Connect the movable or third brush to one of the other two and then turn the current on again. If the motor does not run, disconnect it and connect it to the opposite one, which should allow the motor to run. Adjust the movable brush back and forth until the motor runs at its highest speed. On some generators the whole brush assembly is movable. In such cases, move the assembly instead of one brush. It may be necessary to mount the movable brush on an independent support to locate it at the best point. After adjustment, the brushes should be replaced with those of the carbon type, as these have very little resistance. Some generators have only one terminal, the other being grounded to the frame. In this case, the grounded wire is removed and fastened to an insulated terminal by drilling a hole through the generator case and inserting an insulated bind-

NEW WAY TO CHURN

Thousands are changing to this simple, convenient, modern way to churn. It's the famous DAZEY principle adapted to electrical operation. Ends the drudgery. Just turn the switch. Made in 2, 4, 6 and 10 gallon sizes. Write today for catalog and further information.

DAZEY CHURN AND MFG. CO., Dept. 27
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WATER SYSTEMS

Provide Running
Water at Low Cost

WRITE US

THE FT. WAYNE ENGINEERING & MANUFACTURING CO.
1722 N. Harrison St.,
FORT WAYNE, IND.

ing post. If the motor has a tendency to heat up at high speeds, it can be cooled by mounting a small fan on the armature shaft."

I attempted to put this idea into effect with a 6 V. Delco generator, three brush, grounded type to operate on 110 V. A. C. I find it will run as a motor when either the grounded brush and the movable brush are connected together, or the insulated brush and the movable brush are connected together. But when the remaining brush is connected to either of the other brushes (as per instructions) to act as a regulating third brush the generator hums, but refuses to run. Am I confused, or are the constructions?

The generator is also much inclined to heat up, and when a light is burning in the room when the motor is turned on, it dims the light and holds it dim as long as it is running. Why should so small a motor do this?

Any comments or advice you may give me will be much appreciated.

Clarence Church,
Box 29, Fernwood, New York.

Answer: It is very impracticable to attempt to change a D. C. motor to an A. C. motor. An electric light bulb or other heating appliances of the same voltage can be used on either D. C. or A. C. current, but motors even of the same voltage cannot.

Connecting a 6 volt D. C. motor to a 110 A. C. circuit may result in a freak A. C. motor that at its best would be very inefficient.

The resistance of a 6 volt motor to 110 volts is very low, but the reactance must be very high in order that impedence may cut the voltage from 110 to 6 volts. This causes excessive heating in the stationary field. The brushes of the armature, when grounded as directed, permit the armature to act as a transformer, the induced current sets up a voltage as in a repulsion type motor and the rotor turns. This also causes excessive heating in the armature and naturally the outfit runs hot. Your lights are dimmed due to the heavy flow of current used; a watt meter in the 110 volt circuit would show a flow of current out of proportion to any power delivered at the motor.

Question: *"Should the switch be turned to shut off electricity from buildings during a severe thunderstorm?"*

Mrs. H. G. Butler,
Waterport, New York.

Answer: There is considerable argument as to the advisability of opening the main circuit during a severe lightning storm. An electric service is grounded at the transformer and entrance service switch, but lightning is very freakish and it may, instead of following the shortest grounded pathway, splash over on wires that would conduct it in a round-about way to the ground. Under these conditions, any contact with electrical equipment might convert the human body into a ground and thus prove dangerous.

Even with the main switch open it would be possible for lightning to jump the gap between the switch. (terminals) it is my belief that very few people "pull" the switch during an electric storm.

FIRE means LOSS

Protect Your Family —Your Livestock —Your Home

The Ford Fire Detector warns you of danger. Only 130° sets off its death-awakening alarm. You can install it in a minute—It is always on guard, day and night—yet it costs nothing to operate except when fire occurs. Literature on request, **but better order one now — tomorrow may be too late — it costs only $10.00 delivered** — check with order or C.O.D. Address: Independent Traders, Inc. 11 West 42nd St., New York City.

Dealers Wanted Everywhere

BESTOV

3-BRUSH ELECTRIC BOTTLE WASHER

Washes inside and outside. Motor driven. Quiet. Smooth-running. Completely self-contained. Simple, positive operation. Very economical. Also made for belt drive and single brush model. Write for illustrated folder F-3216.

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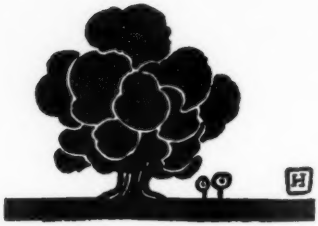


Under The CHESTNUT TREE

All Close

"Who is your closest relative?"

"It's impossible to get money from any of them!"

"The difference between the cow and the milkman," said the would-be witty consumer, "is that the cow gives pure milk."

"There is another difference," retorted the milkman. "The cow doesn't give credit."—The Milk Industry (England).

Bone Dry

Giles: "'Ave 'ee milked all the cows, John?"

John: "Aye, all 'cept the American one."

Giles: "Wot 'un is that?"

John: "The one wot be gone dry."—The Canadian Dairy and Ice Cream Journal.

In Memoriam

Mr. Binks was busily engaged with a spade in the mud beside his car when a stranger hailed him.

"Stuck in the mud?" he asked.

"Oh, no!" replied Mr. Binks cheerfully. "My engine died here and I'm digging a grave for it."

A man running after a taxicab panted to the driver, "How much to the station from here?"

"Fifty cents," replied the driver.

The man continued to run, and after having covered another stretch asked breathlessly, "How much now?"

"Seventy-five," retorted the driver. "Ye're runnin the wrong way."

The local druggist, with a reputation for stinginess, advertised that every customer who bought goods worth more than a dollar would receive a cigar lighter and a coat hanger, free. To prove his good faith he had the sealed packets stacked on his counter.

When they were opened they were found to contain a match and a nail.

His Connection

"The town is to build a new concert hall, Smith told me. He is delighted."

"He is not musical. What ground has he to be pleased?"

"The ground for the concert hall, which he has sold to the town."—Pages Gaies (Yverdon).

Why are you writing to the Director of the Census?

We've got a new baby.—Louisville Courier-Journal.

Dropped the "H"

"Yes," said Hawkins, who had purchased some old silver at an auction, "this is the old Hawkins family plate."

"Indeed!" exclaimed his guest. "But surely this is an 'A' engraved on it."

"Is it? Oh-er-yes, of course! The original 'Awkinses were English, you know!"—Pathfinder.

Framed!

"Meouw — owr — owr," wailed the Tabby-cat.

"I'm sorry to have to do this," said Johnny as he spread the strawberry jam all over the cat's face, "but I can't have suspicion pointing its finger at me."

The wounded Highlander in the hospital was very much depressed and seemed to make no headway toward recovery. He was forever talking about his Bonny Scotland. The idea occurred to the doctor that a Scotch piper should be found who might arouse his spirits. After hunting around a piper was found and it was arranged that he should present himself outside the hospital that night and pour forth all the gems of Scottish music the pipes were capable of interpreting. This he did.

When the astute doctor called the next morning he eagerly asked the matron, "Did the piper turn up?"

"He did," replied the matron.

"And how is our Scotch patient?"

"Oh, he's fine. I never saw such a change."

"That was a grand idea of mine, getting that piper," said the delighted doctor.

"Yes," said the matron sadly. "But all the patients in the hospital are suffering from a serious relapse.

The Answer to WHO MAKES IT

Electric Ranges
EDISON G-E APPLIANCE CO.
See page 2 (Inside Front Cover)
MALLEABLE IRON RANGE CO.
See page 5

Refrigerators
GENERAL ELECTRIC COMPANY
See page 25

Milk Cooling Equipment
ESCO CABINET COMPANY
See page 29
GENERAL ELECTRIC COMPANY
See page 25

Electric Incubators & Brooders
OAKES MANUFACTURING CO.
See page 33

Electric Poultry Supplies
OAKES MANUFACTURING CO.
See page 33

Chore Motors
CENTURY ELECTRIC COMPANY
See page 27

Stationary Spray Pumps
MYERS & BRO. CO., F. E.
See page 3

Paint & Insecticide Sprayers
ATCO PRODUCTS CORP.
See page 35

Insect Traps
FOLMER-CHAPIN CORP.
See page 31

Bottle Washers
CHERRY-BURRELL CORP.
See page 39

Water Systems
MYERS & BRO. CO., F. E.
See page 3
ROPER CORP., GEO. D.
See page 33
RED JACKET MFG. CO.
See page 35
FT. WAYNE ENG. & MFG. CO.
See page 38

Hot Water Heaters
EDISON G-E APPLIANCE CO.
See page 2 (Inside Front Cover)
MALLEABLE IRON RANGE CO.
See page 5
ESCO CABINET COMPANY
See page 29

Churns
CHERRY-BURRELL CORP.
See page 39
DAZEY CHURN & MFG. CO.
See page 38

Clipping Machines
CHICAGO FLEXIBLE SHAFT CO.
See page 37

Dairy Utensil Sterilizers
EDISON G-E APPLIANCE CO.
See page 2 (Inside Front Cover)
MALLEABLE IRON RANGE CO.
See page 5
ESCO CABINET COMPANY
See page 29

Fire Detectors
INDEPENDENT TRADERS, INC.
See page 39

The manufacturers in the above list are all reputable and the equipment they make is known to be practical for farm use. When needing further data write directly to them or get in touch with a representative.
For information about equipment not included in the above and the names of manufacturers use the handy coupon.

TEAR OFF HERE

ELECTRICITY ON THE FARM, 24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying:

....

....

My name is.....

Address .....

.....

I get my electricity from.....

4-32

Good Water Supply

Each month we receive "Electricity on the Farm," a magazine in which I am very much interested.

Three years ago, electricity was installed in our locality and since that time I have enjoyed many electrical servants, my favorite one being our "Bulldog" electric pump. It is placed in the cellar and draws water from a twenty-foot-deep dug-well. It furnishes our six-acre farm with plenty of water, both within the house (where we have two bathrooms) and without.

Since I have been privileged with this servant, it would seem impossible to be without it.

MARJORIE PARKER,
R. 1, Hudson Falls, N. Y.

Washing Machine Most Useful

The electric washing machine is, I believe, the most useful electrical servant to me. It saves me much time and labor.

The washing is done in one-half the time with the washing machine and, as I have a large one, this helps out immensely. The wringer especially saves strength and also time as the clothes can be wrung while the machine is washing others.

The running of the electric washing machine is simple and not complicated, as some women would imagine. No man can realize how much of a help the electric washing machine is to a busy housewife.

MRS. W. A. BOYS,
R. 1, Linwood, Kan.

Saves Early Rising

My favorite electrical servant is the electric motor that grinds the feed for the cows. Formerly I had to get up at 5:30 o'clock and grind it in the old hand grinder. It was cold and hard to turn in the early hour of the morning. Now all I have to do is turn the switch and then feed the grain into the hopper. Then I take the basket out from under the grinder and give it to the cows.

JACK MARTIN,
Poindexter, Ky.

Appreciate Electric Service

The long nights made more dark and dreary by cloud and mud brings full appreciation of the lights and electric service. And of course we think of the vast amount of talk and effort put forth to convince us that we could afford to have them installed. Now I am going to jot it down—right here—in black and white—we are indeed grateful.

Our hens are laying above all expectations, about 54% to date. We got 131 and 127 eggs yesterday and today respectively from 213 banded layer.

ROLLA J. ASH,
Ferris, Ill.

CLASSIFIED ADVERTISING

The LYON ELECTRIC COMPANY manufacture electric poultry equipment exclusively. Long, practical experience in the highly developed California rural electric field enables us to furnish quality devices at reasonable prices. The LYON line includes: Brooders—Incubators — Egg Testers — Burglar, Temperature and Power-off Alarms — Heating Elements—Thermostatic Supplies—Time Switches—Wiring Supplies. Write for catalog today. LYON ELECTRIC COMPANY, 2075 Moore Street, San Diego, California.

IDEAL HAY HOIST operates Hay Carrier with 2 to 5 H.P. motor or engine. Saves extra team and driver all through busy haying season. 10 DAYS FREE TRIAL. Write for circular 202. UNIVERSAL HOIST & MFG. CO., CEDAR FALLS, IOWA.

NEW LOW PRICE ON FROST ELECTRIC—2 COW MILKER $75.00 COMPLETE. Ready to milk. Equipped with Frost Teat Cups (Rubber Lined and Easy to Clean). Write for money-back guarantee. FROST ENGINEERING CO., No. 3, Oak Park, Illinois.

SWEET POTATO PLANTS FOR SALE. The best Georgia produces. Big stem Jersey, Porto Rico and other varieties. Be sure to plant a patch of potatoes this year. You will be pleased with the quality of these plants. Write for prices, stating the number of plants wanted. DAVID NICHOLS CO., Kingston, Georgia.

Cash Prizes Awarded

First Prize for February—$25.00

He freed his country from a colony's doom—
Electricity now frees it from drudgery and gloom.

V. E. CHRISTEL, Box 531, Logan, Ohio.

The following have been awarded $5.00 cash prizes for their February titles.

"The spirit of Washington exemplified, By the modern farm—electrified."—Charles F. Quimby, Walpole, Mass.

●

"Like Washington in the Colonial days, Electricity leads the modern age."—Elmer Peaspanen, R. 2, Ashtabula, Ohio.

●

"Washington emancipator of his country, Electricity emancipator of the home."—M. M. Renn, R. 1, North East, Md.

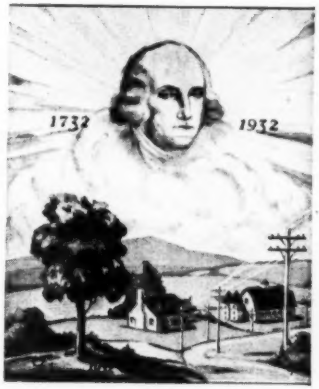
●

"The light of his country and the Country's light."—Leila E. Hillabrandt, R. 3, St. Johnsville, N. Y.

●

"Servants of our country—These faithful two, Giving us freedom and convenience, too."—R. Binnie, R. 2, Roann, Ind.

●



Front Cover Picture
February Issue

Rules for April Contest

There will be one first prize of $25.00 and five second prizes of $5.00 each. In case of a tie each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent are eligible. Each contestant may submit only one title.

Send your title on the coupon below or on a plain sheet of paper making out a similar form.

Question "A" must be answered correctly.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 24 W. 40th St., New York, before May 1st.

Winning names and titles will be announced in the June issue.

My title for the April Front Cover picture of ELECTRICITY ON THE FARM is.....

.....

.....

.....

.....

(a) List the electrical appliances you do not own in the order you plan to purchase them.

1..... 3..... 5.....

2..... 4..... 6.....

My name is .....R. F. D.....

Post Office ..... County ..... State .....

THE ELECTRIC WATER BOY

More Than Earns His Pay

Pumping water by hand is a great waste of time. An electric water system will pump 1,000 gallons of water per kilowatt hour, according to actual tests on Indiana farms. With an electric water system you can have running water for your house, barn and yards at low cost. Write our Rural Service Department or see your local dealer.

NORTHERN INDIANA PUBLIC SERVICE COMPANY

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